Feeding Cattle Beyond Optimum Market Weight and Finish

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Factsheet

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This Factsheet is written in common units used by the beef industry. The units are a combination of metric and imperial units. Imperial is common usage for describing animal weights and sale prices by weight in the beef industry.

INTRODUCTION

When market prices are low, cattle feeders are sometimes tempted to hold cattle in the feedlot past normally optimum weights and levels of finish. Rather than selling at a loss or for a minimal profit, the operator may predict that the market price will rise during the coming weeks, justifying retaining the cattle past their normal weight and fat level. This strategy may work, or it may just incur larger losses. The following shows some of the animal, feed and economic factors to consider when adjusting marketing strategies.

OPERATING MARGIN

Generating the highest possible margins in cattle feeding depends on maximizing the difference between cattle revenue and operating costs for the feedlot animals. The operating margin is not the same as total profit. It does not take into account costs independent of the number of cattle fed. Once a feedlot is in operation, there are many costs such as investment in facilities and land, depreciation on assets and insurance, that have already been incurred and so do not affect the operating margin.

Cattle revenue is the product of the weight of the animal times its selling price (including any discounts). Operating costs are the sum of expenses such as feed, yardage, marketing and interest on cattle. Maximizing the operating margin requires that animals be sold when the difference between the value of an animal and the costs incurred by that animal is at its greatest. While this seems easy enough in principle, it is far more difficult in practice, since many factors come into the equation, including declining feed efficiency as cattle grow heavier and the risk of discounts due to overweight or over-finished animals.

FEEDLOT PERFORMANCE, COSTS AND MARKET PRICES

Cattle performance in a feedlot is determined by the interplay of several factors, including genetic make-up of the animals, current weight of the animals, level of energy (and other nutrients) in the diet, dietary intake, hormonal implant program and environmental conditions. Operating costs include the cost of the feed ingredients and bedding, labour costs and the interest rate applied to the cattle.

The revenue returned by a given animal is influenced by a combination of its weight, level of finish, estimated retail yield and marbling. The grading system categorizes carcasses into yield grades (retail yield) and quality grades (marbling). Individual carcass value is usually arrived at by using a base bid market price per pound for a specified carcass, with various discounts applied when the specified parameters are not met (Table 1). Typically, the criteria include a carcass weight range, yield grade range and quality grade.

Table 1 shows representative Ontario discounts for carcasses based on weight, yield grade, quality grade and age (youthful or over 30 months of age). Processors set their own optimum ranges for carcass size, yield grade and marbling. Cattle outside these ranges will receive a discounted price to reflect their lower value to the processor. Cattle that fall outside of the "A" grid such as B1s (devoid of marbling or with <2 mm back fat) and B4s (dark cutters) attract significant discounts. In some value chains, there may be premiums offered for certain traits such as AAA or Prime marbling, or smaller carcass sizes. Consult your processors to obtain current price structures.

Ministry of Agriculture, Food and Rural Affairs

Ontario

Table 1. Typical Weight and Grade Discounts for Finished Cattle in Ontario*

Grade and Characteristic	Discount ($/lb carcass wt)
Yield Grade 3	–$0.05
Single A	–$0.01
B1 (devoid of marbling or <2 mm BF)	–$0.20
B2 (yellow fat)	–$0.25
B3 (deficient muscling)	–$0.25
B4 (dark cutter)	–$0.25
Weight (option 1)	
900–950	–$0.08
951–1,000	–$0.10
1,001–1,050	–$0.12
1,051–1,100	–$0.14
>1,100	–$0.30
Weight (option 2)	
900–1,000	–$0.10
1,001–1,100	–$0.15
>1,100	–$0.35
Age	
Over 30 months (OTM)	$25–$100 per head

* Target specifications assumed to be carcass wt <900 lb, marbling AA or higher, Yield Grade 1 or 2.

FEEDING BEYOND NORMAL MARKET WEIGHT

When cattle are fed beyond the optimum weight and/or finish level specified by the market, their value on a per-pound basis may decline due to discounts, but the total number of pounds for sale increases. Cattle continue to grow and eat each day they are held in the feedlot, but as they get heavier and fatter, their rate of weight gain declines, along with the efficiency of their conversion of feed to gain. As well, their feed intake as a percentage of body weight declines with increasing body weight. Another issue is the deterioration of rumen health, as subacute acidosis due to a high starch diet will eventually cause significant damage to the rumen, further reducing performance and potentially culminating in laminitis and founder.

The economics of feeding cattle at this stage is a complex interaction of factors that increases costs per head and changes value per head. Each feedlot has a unique cost structure and therefore deserves specific analysis. However, reviewing a generalized scenario can be helpful in understanding principles and evaluating individual situations. Table 2 presents an example scenario that shows the results of keeping cattle on feed for an additional 20, 40 or 60 days beyond the normal optimum marketing point, given specific costs. In this scenario, the steers are assumed to be at an adequate level of backfat and marbling to grade AA or AAA, with no price differential between these grades.

Table 2. Effect on Performance and Cost of Holding a 1,400-lb Steer Beyond Optimum Market Weight †

	Days Beyond Optimum Market Weight		
	20	40	60
Live weight	1,460 lb	1,510 lb	1,550 lb
Carcass weight (60% dressed)	876 lb	906 lb	930 lb
Feed dry matter intake (% of body weight)	1.95%	1.85%	1.75%
Average daily gain	3.00 lb/day	2.63 lb/day	2.25 lb/day
Change in feed conversion*	+6.5%	+15%	+21.5%
Added feed cost **	+$48.50	+$95.50	+$139.50
Added yardage + interest costs @ $0.50/day	+$10.00	+$20.00	+$30.00
Selling price ($/lb, carcass wt.)	$1.50	$1.40	$1.40
Discount for overweight carcass***	–$0.00	–$90.60	–$93.00
Added cost to hold cattle (excluding possible yield discounts)	+$58.50	+$206.20	+$262.50
Sale value of carcass	$1,314.00	$1,268.00	$1,302.00
Change in value of carcass relative to marketing at 1,400 lb live weight	+$54.00	+$8.40	+$42.00
Market price increase required to cover additional costs ($/lb carcass wt.)	+$0.01	+$0.22	+$0.24

† Base market price is assumed to be $1.50/lb of carcass weight, AA/AAA, Yield Grade 1 or 2.
* Pound of feed per pound of gain, i.e., amount of feed required to produce 1 lb of gain increases by 6.5%
** Feed costs based on corn @ $150/ton and protein supplement @ $350/ton.
*** Based on a discount of $0.10/lb for carcasses between 901 and 1,000 lb.

For carcasses over 900 lb, a discount of $0.10/lb is applied. The base scenario for comparison is a 1,400-lb live weight steer that will dress 60% (giving a carcass weight of 840 lb) and achieve a yield grade of 2, with AA marbling. The assumed base market price for within-specification carcasses is $1.50/lb, giving a total value for the comparison carcass of $1,260.

HOLD OR SELL?

In the above example, holding cattle for an additional 20 days entails little risk. The extra costs incurred by the cattle would be offset by a market price increase of only $0.01/lb on a carcass weight basis, combined with

a low probability of cattle laying down enough fat to receive a yield grade of 3. Since the cattle did not exceed the 900-lb carcass weight threshold, no discount would be applied. If the market rose by $0.05/lb by the end of the 20-day holding period, the feeder's operating margin would improve by $35.00/head.

However, holding the cattle for 40 days results in exceeding the 900-lb carcass weight threshold, and incurring an overweight discount of $0.10/lb. To cover the additional feed and yardage costs and the price discount, the base market price would have to increase by $0.22/lb carcass weight (from $1.50/lb to $1.72/lb). This incurs significantly more risk than the 20-day scenario, due to the substantial discount overweight carcasses attract.

Holding cattle for a total of 60 days past normal optimum would also incur the overweight discount. To cover the additional costs of feed and yardage and the price discount, the market would have to rise by $0.24/lb by the end of the holding period. In addition, some cattle fed this long may become overly fat and drop into the Yield Grade 3 category, attracting an additional $0.05/lb discount. Rumen health will also be at risk, as the effects of low rumen pH accumulate.

SUMMARY

To make informed decisions about the marketing of a group of finished cattle, feedlot operators need accurate information regarding their operating costs as well as the projected carcass weights and grades the cattle will achieve when held for varying lengths of time. In addition, they must know the various discounts that will apply when cattle fail to meet the target specifications determined by their market. Holding cattle for a relatively short period of time (2– 3 weeks) can be a good strategy if the market is expected to rise and the cattle will not get into the discounted overweight range. Holding cattle for longer periods of time presents a much larger risk if cattle become overweight and/or overfat and are subject to significant discounts.

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